

# ROOFING/WATERPROOFING QUALITY ASSURANCE CHECKLIST

Note: This checklist applied to both “Roofing” and “Waterproofing” as applicable

## Predesign

\_\_\_ Required deliverables submitted

## Schematic Design

\_\_\_ Required deliverables submitted

\_\_\_ Roof/waterproofing assembly(ies) appropriate for the building’s intended use, location and design life expectancy

\_\_\_ Roof/waterproofing assembly(ies) appropriate for deck type, slope, fire, wind hail, uplift and thermal requirements, vapor control, environmental requirements and cost

\_\_\_ Roof/waterproofing assembly(ies) application appropriate for climate locations considering hot and cold temperatures, wind, and precipitation

\_\_\_ For low slope roofs, 2-ply modified bitumen and a single ply membrane is the system of choice. Use a modified bitumen roof in areas that require high puncture resistance, exposure to abuse or need frequent access to maintain mechanical equipment. Use a single ply membrane on complex configured roofs, roof with many penetrations or when roof access needs are minimal

\_\_\_ Avoid ballasted, sprayed polyurethane foam, APP modified bitumen or cement composite roofs

\_\_\_ Consider steep slope roofing systems whenever feasible

\_\_\_ In high snow areas, avoid steep pitch roofs that shed snow over doors and windows. Design building shapes and roof configurations to minimize damage from sliding snow/ice to the roof itself, dormers and pipe penetrations

\_\_\_ Use cold roof techniques in areas where snow and ice can accumulate on the roof.

## Design Development

\_\_\_ Required deliverables submitted

\_\_\_ Building Code compliance with fire rating classification, wind classification and hail rating

\_\_\_ Comply with NPS Roofing/Waterproofing design standards and National Roofing Contractors Association Roofing and Waterproofing Manual and International Building Code

\_\_\_ Provide wind uplift calculations based on ASCE 7. Specify roof systems that meet ASCE requirements

\_\_\_ Provide roof drainage calculations for sizing roof drains, leaders, downspouts and gutters

\_\_\_ Provide written documentation for determination of required roof fire rating class using procedures in IBC or NFPA

\_\_\_ Review building’s interior temperature and humidity conditions and climate to determine vapor barrier requirements. Calculate dew point location within the wall and roof assembly

- \_\_\_ Determine compatibility of roof material with other materials that may settle onto the roof or flow off the roof
- \_\_\_ Determine need for construction sequencing and the affect it will have on roof assembly selection
- \_\_\_ Consider maintenance, repair and eventual reroofing (life cycle cost) in final selection of roofing system
- \_\_\_ Obtain roof slope by constructing slope in structural system in lieu of tapered insulation boards or lightweight concrete fill
- \_\_\_ Use of lightweight insulating concrete, gypsum fill or asphaltic perlite fill is not recommended unless the materials are extensively used in the project area and there is sufficient contractor competition
- \_\_\_ Determine roof pitch after considering potential roof deflections, and existing structural deck conditions to insure positive drainage. For low slope roofs, maintain a minimum  $\frac{1}{4}$ "/ft. roof slope and  $\frac{1}{8}$ "/ft. along valleys by using crickets and tapered insulation. For high slope roofs, consult with codes and roofing manufacturer's limitations
- \_\_\_ Review roof configuration and roof drainage layout to provide most efficient means to remove water
- \_\_\_ Use internal roof drains in climates where freeze/thaw condition is prevalent. In freeze/thaw climates, locate gutters, downspouts, scuppers and drains in area which receive sunlight if possible
- \_\_\_ Avoid built-in gutter systems in which drainage passes through or part of the interior spaces or is concealed in exterior wall cavity
- \_\_\_ Use sidewall louvers for intake and exhaust systems whenever possible
- \_\_\_ Avoid rooftop mounted HVAC equipment when possible
- \_\_\_ Buildings over 1 story should have an internal roof access means through a manufactured roof hatch
- \_\_\_ Use of asphaltic and wood shingles and shakes in tropical climates shall be fungus resistive and wood shall be pressure treated
- \_\_\_ When reroofing, provide field investigation of existing roof and deck construction and conditions. Identify existing materials and test suspect roofing materials for asbestos. Insure existing materials are suitable and compatible with proposed roof system
- \_\_\_ Outline specs provided for all required sections

## 100% Draft Construction Documents

- \_\_\_ Required deliverables submitted
- \_\_\_ Specify modern and proven technology as used in torch down and adhesive type modified bitumen systems
- \_\_\_ Specify manufacturers that have a proven product record of 20-30 year service life without manufacturer's alterations to the material during that time span
- \_\_\_ Specify roof assemblies as a complete system to include insulation, cover board, membrane and

miscellaneous accessories

- \_\_\_ Specify mechanical fastening of roof system for all nailable deck. Use adhesive for non-nailable decks per membrane manufacturer's requirements
- \_\_\_ Specify fastener nailing pattern of roof insulation, cover board and base sheet when using mechanical fasteners to deck
- \_\_\_ Specify cover board with a hard durable impermeable surface with fire resistance properties
- \_\_\_ Specify roof drain strainer to be manufactured from iron
- \_\_\_ Specify use of pressure-treated wood blocking and nailers
- \_\_\_ Specify contractor compliance with FM Loss Prevention Data Sheet 1-49 recommendations concerning edge flashing design details
- \_\_\_ Specify minimum 18 gage metal for perimeter edge or fascia strips
- \_\_\_ Specify and show manufactured 2-piece counterflashing, removable coping systems, roof edge/fascia systems to aid in future reproofing
- \_\_\_ Specify and show perimeter edge metal flashing on steep roofs
- \_\_\_ Specify the appropriate underlayment for steep roofing system
- \_\_\_ Specify opened or closed valleys for steep roofing
- \_\_\_ Specify and show eave cant for slate, concrete and tile roofing
- \_\_\_ Specify public and visitor safety requirements
- \_\_\_ Specify limits on odors, noise and dust during roof applications
- \_\_\_ Specify in project closeout that a permanent sign be affixed near a roof hatch or provided to the government indicating the type of roof membrane used, the installer, the date of expiration of the warranty and emergency telephone number.
- \_\_\_ Specify final inspection of the roof by the roof manufacturer
- \_\_\_ When possible, specify a full system warranty for low slope roofs and leakproof warranty for steep slope roofs covering labor and materials with a no dollar limit for 15 to 20 year duration
- \_\_\_ Determine type and amount of insulation required and specify installation using double layer of insulation boards
- \_\_\_ Check deck and supporting structure for ponding deflections, located drains at mid span
- \_\_\_ Roof drains coordinated with architectural, civil and mechanical drawings
- \_\_\_ Primary drains and scuppers should be sumped below the roof membrane
- \_\_\_ Show and detail primary and secondary drains and scuppers, wall and curb flashing, parapet walls, crickets and special conditions not normally detailed by the manufacturer
- \_\_\_ Show and detail all roof mounted equipment, lightning protection terminals and accessories, roof penetrations, vents, exhausts, skylights, monitors and access hatches
- \_\_\_ Mechanical equipment or electrical penetrations should not be located in valleys or drainage areas. Electrical conduit should penetrate equipment curb, not roof
- \_\_\_ Provide a 24" minimum space between penetrations, curbs, drains, perimeter, walls, etc.

- \_\_\_ Crickets shall be install upslope of mechanical equipment or building features
- \_\_\_ Review need of roof expansion joints to accommodate building thermal movement, structural framing and deck changes and building configurations
- \_\_\_ Detail special flashing details to accommodate roof to wall movement.
- \_\_\_ Show minimum curb and wall flashing heights
- \_\_\_ Show cants at 90 degree angle changes when using modified bitumen roof systems.
- \_\_\_ Mount mechanical equipment on raised curbs and show securement against wind forces
- \_\_\_ Keep roof penetrations to a minimum by consolidation of vent pipes and exhaust vents
- \_\_\_ Avoid pitch pockets whenever possible
- \_\_\_ Show continuous cleat at bottom of edge or fascia strips
- \_\_\_ Provide raised fascia edge with metal flashing at roof perimeters instead of embedded edge metal flashing
- \_\_\_ Provide through wall flashing under parapet wall caps
- \_\_\_ Provide watertight membrane under coping joints, if not under the entire coping. Coping to be sloped to shed water to roof side
- \_\_\_ Show walkway pads around mechanical equipment which requires periodic servicing
- \_\_\_ Determine need for ventilating the underside of roof with eave and ridge vents
- \_\_\_ Determine need for ice dam protection membranes
- \_\_\_ Determine need and show detail of step flashing and counterflashing at vertical surfaces
- \_\_\_ Gutters shall be sloped 1/16" per foot minimum to downspouts.
- \_\_\_ Penetrations in metal roof shall occur in the roof pan and be designed to accommodate roof movements
- \_\_\_ Provide details for lightening protection, satellite dishes, hatches, skylights, antennas and other penetrations
- \_\_\_ Flood test waterproof membranes before backfilling or placing material upon it

### Submit 100% Complete Construction Documents for Final Approval

- \_\_\_ Required deliverables submitted
- \_\_\_ All review comments from 100% Draft Review satisfactorily resolved